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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009,979	03/27/2002	Georg Denk	1454.1205	5783

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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

THOMPSON, ANNETTE M

ART UNIT PAPER NUMBER

2825

DATE MAILED: 10/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/009,979

Applicant(s)

DENK, GEORG

Examiner

A. M. Thompson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

This application, 10/009979, with accompanying preliminary amendment has been examined. The abstract is amended. The substitute specification has been entered. Claims 1-10 are cancelled. Claims 11-24 are pending.

Claim Objections

1. Claims 1, 12, 13, 18, 23, 24 are objected to for the following reasons: Pursuant to **claim 1**, at line 3, use plural form of "circuit"; at line 4, before "charging", change "the" to - -a- -; at line 4, before "individual" delete "the"; at line 5, "each node" is recited, without first establishing that the circuit is composed of nodes. Additionally, at line 3, "in a first step" is recited, however, no subsequent step is ever referenced in this or any dependent claim. Pursuant to **claim 12**, delete each occurrence of "in each case"; at line 2, before "potential", insert - -same- - to provide sufficient later antecedent basis in claims 16 and 19; at line 3, delete "one" and insert - -a- - in lieu thereof; Pursuant to claim 12, before "predetermined", insert - -same- -. Pursuant to **claim 13**, at line 2, before "value" insert - -predetermined- -. Pursuant to **claim 18**, delete each occurrence of "in each case"; "the value of C" lacks sufficient antecedent basis; at line 4, "this step" lacks sufficient antecedent basis. Pursuant to **claim 23**, this claim requires the same corrections as claim 18. Pursuant to **claim 24**, it requires the same corrections as claim 1, albeit at different line numbers. Appropriate correction is required.

2. Applicant is advised that should claim 13 be found allowable, claim 15 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof; additionally, should claim 14 be found allowable, claim 16 will be objected to under 37 CFR 1.75 as

being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 11 and 24** are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship between providing a dynamic element at each node of the circuit and the charging method the parallel calculation of the operating point. Claims dependent from these rejected claims (**claims 12-23**) are likewise rejected.

5. Claim 12 is also rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Pursuant to claim 12, this claim is confusingly worded and requires clarification, e.g. the meaning of “a potential by means of one capacitance” is unclear.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Rejection of claims 11-24

7. Claims 11-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Ulrich Bretthauer et al. paper (the Bretthauer paper) entitled BRASIL: The Braunschweig Mixed Mode-Simulator for Integrated Circuits in view of the H. Spiro paper (the Spiro paper) entitled Simulation of Integrated Circuits. The Bretthauer paper discloses the parallel calculation of an operation point as part of its simulation algorithm but does not specifically disclose the use of the charging method. The Bretthauer paper merely discloses at page 4, column 2, that an operation-point analysis has to be performed. The Spiro paper teaches the use of the charging method in the parallel calculation of the operating point. It would have been obvious to one of ordinary skill in the art to use the Spiro paper method of simulation using the charging method with the Bretthauer paper simulation algorithm to achieve rapid and accurate convergence.

8. Pursuant to claim 11, the Bretthauer paper discloses the parallel calculation of the operating point comprising partitioning the circuits into a number of partitions (the Bretthauer paper, § 4. Coupling of the simulation algorithms); using the charging method for the parallel calculation of the partitions (the Spiro paper); providing a dynamic element at each node of the circuit (Bretthauer paper, § 4. Coupling of the simulation algorithms, column 2).

9. Pursuant to claim 12, wherein each circuit node is connected a predetermined value set by a capacitance (the Bretthauer paper, § 4. Coupling of the simulation

algorithms, column 2) to calculate an operating point (the Bretthauer paper, § 4. Coupling of the simulation algorithms, column 2).

10. Pursuant to claim 13, wherein a capacitance having the same value is provided at each node of a partition (the Bretthauer paper, § 4. Coupling of the simulation algorithms, column 2; see also Figure 4).

11. Pursuant to claim 14, wherein each node of a partition is connected to the same potential by means of a capacitance (the Bretthauer paper, § 4).

12. Pursuant to claim 15, wherein a capacitance having the same value is provided at each node of all partition (the Bretthauer paper, § 4. Coupling of the simulation algorithms, column 2; see also Figure 4).

13. Pursuant to claim 16, wherein each node of all partition is connected to the same potential by means of a capacitance (the Bretthauer paper, § 4).

14. Pursuant to claim 17, wherein the potential is connected to ground (see Figure 4).

15. Pursuant to claim 18, wherein the operating point of the circuit is calculated with a suitable step-by-step change in the value of the capacitance, and this step is repeated until the values of the capacitances are zero (the Spiro paper).

16. Pursuant to claim 19, wherein each node of a partitions isconnected to the same potential by means of a capacitance (the Bretthauer paper, § 4).

17. Pursuant to claim 20, wherein a capacitance having the same value is provided at each node of all partition (the Bretthauer paper, § 4. Coupling of the simulation algorithms, column 2; see also Figure 4).

18. Pursuant to claim 21, wherein each node of all partitions is connected to the same potential by means of a capacitance (the Bretthauer paper, § 4).
19. Pursuant to claim 22, wherein the potential is connected to ground (see Figure 4).
20. Pursuant to claim 23, wherein the operating point of the circuit is calculated with a suitable step-by-step change in the value of the capacitance, and this step is repeated until the values of the capacitances are zero (the Spiro paper).
21. Pursuant to claim 24, which recites a computer readable medium, storing a program to control a computer to perform a method for parallel calculation (this limitation is implicitly incorporated as part of the simulators disclosed in the Brasil paper and the Bretthauer paper as circuit simulators function with computer readable media); the method comprising partitioning the circuits into a number of partitions (the Bretthauer paper, § 4.); using the charging method for the parallel calculation of the partitions (the Spiro paper); providing a dynamic element at each node of the circuit (Bretthauer paper, § 4. Coupling of the simulation algorithms, column 2).

Conclusion

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please reference the PTO-892 for a complete listing.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to A.M. Thompson whose telephone number is (703) 305-7441. The Examiner can usually be reached Monday thru Friday from 8:00 a.m. to 5:00

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p.m.. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Matthew S. Smith, can be reached on (703) 308-1323.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956 or the Customer Service Center whose telephone number is (703) 306-3329.

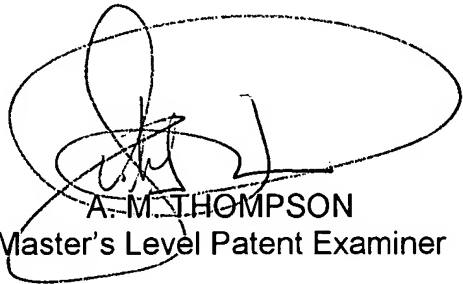
23. Responses to this action should be mailed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306, (for all **OFFICIAL** communications intended for entry)

Hand-delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).



A. M. THOMPSON
Master's Level Patent Examiner